

023593 (09) 6257281 July 10, 2001

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

6257281

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Multi-layer tubing having at least one intermediate layer formed from a polyamide alloy

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ASSIGNEE-PRE-ISSUE: February 13, 1998 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., ITT MANUFACTURING ENTERPRISES, INC. 1105 NORTH MARKET STREET WILMINGTON, DELAWARE, 19801, Reel and Frame Number: 009028/0286

ASSIGNEE-AT-ISSUE: ITT Manufacturing Enterprises, Inc., Wilmington, Delaware, United States (US), United States company or corporation (02)

ASSIGNEE-AFTER-ISSUE: May 1, 2006 - SECURITY INTEREST (SEE DOCUMENT FOR DETAILS)., DEUTSCHE BANK TRUST COMPANY AMERICAS, AS COLLATERAL AGENT 280 PARK AVENUE NEW YORK NEW YORK 10017, Reel and Frame Number: 017564/0165
July 7, 2006 - STOCK AND ASSET PURCHASE AGREEMENT, COOPER-STANDARD AUTOMOTIVE INC. 39550 ORCHARD HILL PLACE NOVI MICHIGAN 48375, Reel and Frame Number: 017892/0524

LEGAL-REP: Seitter, Robert P.

(C) QUESTEL 1994
QUESTEL.ORBIT (TM) 1998

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** SS 1: Results 1
PRT SS 1 MAX 1 LEGALALL

1 / 1 PLUSPAT - ©QUESTEL-ORBIT - image
Patent Number :
US6257281 B1 20010710 [US6257281]
Title :
(B1) Multi-layer tubing having at least one intermediate layer formed from a polyamide alloy
Patent Assignee :
(B1) ITT MFG ENTERPRISES INC (US)
Patent Assignee :
ITT Manufacturing Enterprises, Inc., Wilmington DE [US]
Inventor(s) :
(B1) NIE TAO (US); BENSKO DAVID (US); PONTBRIAND DUANE (US)
Application Nbr :
US2359398 19980213 [1998US-0023593]
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Intl Patent Class :
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IPC Advanced All :
F16L-009/12 [2006-01 A - I R M EP]
IPC Core All :
F16L-009/00 [2006 C - I R M EP]
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US3070132; US3166688; US3473087; US3561493; US3584656; US3828112;
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US4330017; US4448748; US4614208; US4659625; US4675780; US4685090;
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US5142782; US5143122; US5167259; US5170011; US5219002; US5219003;
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US5380385; US5383087; US5389410; US5404915; US5425817; US5449024;
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EP0436923; EP0551094; FR2114550; FR2577168; FR2577564; GB2204376;
GB2211266; WO9325835; WO9530105; WO9744186
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(B1) U.S. Patent (no pre-grant pub.) after Jan. 2, 2001

Abstract :

A multi-layer tube for use in a motor vehicle system to transport fluids containing hydrocarbons such as would be found in a fuel line, a vapor return line or a vapor recovery tube having a first layer radially disposed innermost made up of an extrudable melt-processible thermoplastic material capable of withstanding prolonged exposure to automotive fuel and various fuel additives, and second layer made up of an extrudable, melt-processible non-polyester, non-alcoholic thermoplastic material capable of sufficiently permanent laminar connection with the first layer so as to prevent delamination between the first and second layers during a desired lifetime of the tube. The thermoplastic material of the second layer is made up of at least one constituent which is chemically dissimilar from the thermoplastic material employed in the first layer such as a melt-processible compound having at least two isocyanate groups in combination with a compound which is chemically similar to the thermoplastic material of the first layer such as a thermoplastic elastomer, or a polyamide. The tubing of the present invention may, optionally, include additional layers interposed between the respective layers or may include additional layers which overlie the exterior surface of the second layer.

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Action Taken :

20060501 US/AS-A

ASSIGNMENT

OWNER: DEUTSCHE BANK TRUST COMPANY AMERICAS, AS COLLATERAL; EFFECTIVE

DATE: 20060406

SECURITY INTEREST;ASSIGNOR:COOPER-STANDARD AUTOMOTIVE

INC.; REEL/FRAME:017564/0165

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Patent Assignee :

ITT Manufacturing Enterprises Inc

Actions :

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20060501 REASSIGNED

SECURITY INTEREST

Assignor: COOPER-STANDARD AUTOMOTIVE INC., DATE SIGNED: 04/06/2006

Assignee: DEUTSCHE BANK TRUST COMPANY AMERICAS, AS COLLATERAL AGENT, 280
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Reel 017564/Frame 0165

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20060707 REASSIGNED

STOCK AND ASSET PURCHASE AGREEMENT

Assignor: ITT INDUSTRIES, INC., DATE SIGNED: 12/04/2005

Assignee: COOPER-STANDARD AUTOMOTIVE INC., 39550 ORCHARD HILL PLACE,
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Session finished: 18 DEC 2006 Time 20:17:10
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Patent Search 6,257,281 12/18/2006

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